CONCORD NAVAL WEAPONS STATION
CONCORD, CALIFORNIA

Engineering Field Division/Activity:	EFAWEST
Major Claimant:	COMNAVSEASYSCOM
Size:	13,023 Acres
Funding to Date:	$39,033,000
Estimated Funding to Complete:	$69,821,000
Base Mission:	Ships, receives, inspects, and classifies munitions (tidal area); serves as munitions storage and weapons maintenance, inspection and testing facility (inland area)
Contaminants:	Heavy metals, POLs, volatile and semi-volatile organic compounds

Number of Sites:		**Relative Risk Ranking of Sites:**			
CERCLA:	30	**High:**	29	**Not Evaluated:**	10
RCRA Corrective Action:	24	**Medium:**	4	**Response Complete:**	13
RCRA UST:	3	**Low:**	1	**Total Sites:**	57
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NPL

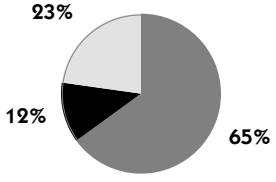
EXECUTIVE SUMMARY

Concord Naval Weapons Station (NWS) is about 35 miles northeast of San Francisco, California. It is surrounded by the city of Concord to the west and south (population 116,000); the city of Bay Point to the east (population 17,000) and the small town of Clyde (population 600) to the north. It is the major Naval munitions facility on the west coast and, as an ocean terminal facility, is used to transship ordnance from trucks and railcars to ships and vice versa. The base operations include shipping, receiving, inspecting, storing and maintaining munitions. Past operational practices such as improper disposal of paints and solvents, spent ordnance, treated wood, household/industrial waste, the open burning of various munitions and spills or leaks from fuel storage tanks have contributed to sources of contamination.

The environmental investigations at Concord are divided into three geographical areas; Inland, Tidal and Litigation. The Litigation Area, located in a tidal area, was purchased by the Navy in the 1970's to provide a buffer zone around the munitions handling operations. The Litigation Area is so named because of the legal actions conducted by the Navy in the late 1980's to recover Remedial Action (RA) cleanup costs from the adjacent and former property owners. Twenty-nine sites in the Tidal and Litigation Areas were ranked as high relative risk primarily because of heavy metals contamination.

The Tidal and Litigation Areas include wetlands that provide habitat for several endangered and threatened species, including the Salt Marsh Harvest Mouse and the California Clapper Rail. The sites in these areas are subject to tidal inundation, have no containment measures and have a direct interconnection to Suisun Bay. Suisun Bay lies immediately to the north of NWS and is commonly used for water sports and fishing.

Concord NWS was placed on the National Priorities List (NPL) primarily because of surface water pathway conditions at the Tidal and Litigation Areas. As a result of its recent listing on the NPL, negotiations on a Federal Facility Agreement (FFA) will begin in December 1995 with the EPA.



Current Status Of Sites

Studies Underway	37
Cleanups Underway	7
Response Complete	13
TOTALS	57

Concord NWS is currently under a Federal Facility Site Remediation Agreement (FFSRA) with the State of California, which was signed in 1992.

A Restoration Advisory Board (RAB) was formed in July 1995 and has 38 active members. Community members have shown a high level of interest in the Installation Restoration Program (IRP). Four committees have been formed and meet at least once a month. These committees include a procedures committee, a public relations committee, a documents review committee and a finance committee.

Thirty-seven sites in the Inland and Tidal Areas are in the Remedial Investigation/Feasibility Study stage (RI/FS). Thirteen sites are Response Complete (RC). Seven Litigation Area Sites are undergoing either post-remediation Long Term Monitoring (LTM) or are in the final stages of Remedial Action (RA). An RA for four Litigation Area Sites was completed in 1994. An RA for the three remaining sites will be completed in December 1995.

Four removal actions will begin in FY96 for two Inland and two Tidal Area Sites. The second LTM event of the Litigation Area Sites will begin in the spring of FY96. The Navy is also conducting Site Inspections (SIs) at 24 Solid Waste Management Units (SWMUs). A RCRA Facility Confirmation Report will be completed in FY97 for the SWMUs. As part of the Navy's goal to expedite the investigation process, the Navy is proposing to conduct Corrective Actions (CAs) at several of these sites so that an extensive Remedial Investigation (RI) is not required.

At three Tidal Area Sites, the Baseline Human Health Report is expected to be completed in FY96. Phase 1B of the RI will begin to evaluate groundwater contamination and the Qualitative Ecological Risk Assessment (QERA) report is expected to be completed in FY97.

For five Inland Area Sites, the final RI/FS reports are expected to be completed in FY97 and a Record of Decision (ROD) signed in FY98.

In FY94 and FY95, risks to human health and the environment were reduced due to an RA for the Litigation Area Sites. Cleanup consisted of excavating and disposing of 42,700 cubic yards of soil contaminated with heavy metals that exceeded hazardous waste levels. The sites were then graded and reseeded. The Department of Navy (DON) prosecuted claims to recover the costs of cleanup from 14 defendants and to require the owners of six contaminated properties adjacent to the installation to clean up their properties concurrent with the DON's cleanup. A LTM plan for groundwater is in effect to evaluate the success of restoration.

CONCORD NWS
RELEVANT ISSUES

ENVIRONMENTAL RISK

HYDROGEOLOGY - Concord NWS is bound on the north by Suisun Bay and on the south and west by the city of Concord. Soil and sediment are contaminated with metals and volatile organic compounds. Surface water is the pathway of greatest concern due to the direct interconnection of the Tidal and Litigation Areas to Suisun Bay and the lack of containment measures. The surface water runoff from Concord NWS is primarily to the north from the Inland and Tidal Areas, through the wetlands, into Suisun Bay.
Groundwater at Concord NWS is not used for drinking water due to its high Total Dissolved Solids (TDS) content. However, potable water wells available for use in drought years are located downgradient of the Inland Area Sites and could be affected by groundwater contamination. The groundwater pathway is currently being evaluated as part of the RI for the Tidal and Inland Area Sites.

NATURAL RESOURCES - Suisun Bay is a transition zone between saltwater and freshwater ecosystems and is interconnected to the Concord NWS wetland areas. This area contains a diverse population of fish and other aquatic wildlife. The Bay is also used for recreation. The upland and wetland areas at Concord NWS provide habitat for numerous flora and fauna and federal and state designated threatened and endangered species. These include the Salt Marsh Harvest Mouse, California Clapper Rail, California Black Rail, Tule Elk and the figwort family of plants including the Delta Tule Pea and Soft Bird's Beak.

RISK - A baseline human health risk assessment will be prepared for the Tidal and Inland Areas as part of the RI. Ecological risk assessments are currently ongoing for the Inland, Tidal and Litigation Areas. At the Litigation Area, this ecological assessment is being conducted in response to the concerns of the regulatory agencies that the RA cleanup levels specified in the 1989 ROD do not adequately protect flora and fauna. The Litigation Area ecological assessment is being conducted in coordination with the ongoing LTM program that was specified in the ROD for the Litigation Areas.

Twenty-nine sites are ranked as high relative risk in the DOD Relative Risk Ranking system at Concord NWS primarily because of threatened and endangered species in the sensitive wetland areas and recreational users in adjoining Suisun Bay. The close proximity of NWS to the Contra Costa County Water Wells surrounding Mallard Reservoir has also contributed to the high relative risk ranking. Risks to human health and the environment have been reduced due to a removal action for the Litigation Area Sites. This action removed 42,000 cubic yards of metals-contaminated soil which exceeded hazardous waste levels. The Navy is planning removal or RCRA Corrective Actions to bring contaminants to safe levels which will reduce immediate threats to human health and the environment and allow several sites to be closed out, rather than requiring the sites to undergo additional investigations.

RESTORATION PROJECTS - The RA for the Litigation Area Sites consisted of excavating contaminated soils, backfilling with clean wetland soils and restoring the excavated areas. The restoration activities were designed to enhance the wetland habitat for the two endangered species of concern, the Salt Marsh Harvest Mouse and the California Clapper Rail. During the RA, elevations were lowered in several areas to enhance the wetland area. In addition, "refugial mounds" were constructed to provide refuge for the Salt Marsh Harvest Mouse during periods of high tide. The excavated areas were revegetated with native species of wetland plants harvested from local areas as well as nursery-grown stock.

REGULATORY ISSUES

NATIONAL PRIORITIES LIST - Concord NWS was placed on the NPL on December 16, 1994, primarily because of conditions at the Tidal and Litigation Area Sites. The Hazard Ranking System (HRS) Score of 50.00 was driven by the surface water pathway, since these sites are subject to tidal inundation and have no containment measures such as runoff management structures. The Tidal and Litigation Areas have a direct interconnection to Suisun Bay.

LEGAL AGREEMENTS - A Federal Facilities Site Remediation Agreement (FFSRA) was signed by the DON, the California Department of Toxic Substances Control and the California Regional Water Quality Control Board, San Francisco Bay Region, on September 29, 1992. The agreement established a schedule for investigation and remediation for the Tidal Area and Inland Area Sites. The Litigation Area Sites were excluded from the agreement because the sites had already proceeded to cleanup.
Negotiations with EPA Region IX and the State of California for an FFA agreement will begin in December 1995.

In FY91, the DON prosecuted claims to recover the costs of cleanup for the Litigation Area Sites from 14 defendants to require that the owners of six contaminated properties adjacent to the sites to clean up their properties concurrent with the DON's cleanup. The DON entered into seven Consent Decrees with the adjacent property owners and recovered costs for cleanup.

PARTNERING - A partnering meeting in FY93 between the Navy and contractors helped the RA project team set goals for the RA at the Litigation Area Sites. The environmental work at Concord has required close coordination with federal and state regulatory agencies to ensure protection of endangered and threatened species. The result is the generation of analytical data by the EPA that will be used to augment the Navy's RI sampling and analysis results. The EPA is performing chemical and biological analyses on samples collected in the Tidal Area to determine appropriate reference levels for metals. The EPA is also performing chemical and biological analyses on samples collected along the boundary of the Tidal Area Landfill to evaluate whether landfill leachate is migrating off-site. The EPA is analyzing split ecological samples using standard Contract Laboratory Program (CLP) procedures, where the Navy analyzed samples using Low Detection Limit (LDL) analytical methods. Also, the project team has worked together to revise the investigative approach for the landfill site to include a presumptive remedy, which will reduce the costs for the RI/FSs.

COMMUNITY INVOLVEMENT

RESTORATION ADVISORY BOARD - A Technical Review Committee (TRC) held one meeting in 1990 and a draft charter was prepared. No other meetings were held but copies of environmental reports were sent to TRC members to review. The TRC was converted to a Restoration Advisory Board (RAB) in FY95. A public notice was issued inviting members of the communities to participate in the RAB. In April and May 1995 the Navy conducted site tours for 150 community members. The tour was followed by question and answer session led by the Navy and regulatory agencies. The first RAB meeting was held on July 20, 1995. The Navy and regulatory agencies have given technical presentations during the monthly RAB meetings. There are 38 active RAB members.

COMMUNITY RELATIONS PLAN (CRP) - A CRP was completed in May 1989. An updated CRP was completed in July 1995.

INFORMATION REPOSITORY - An Information Repository was established at the Central Contra Costa Public Library. An Administrative Record was established in 1988 and is maintained at the Naval Facilities Engineering Command, Engineering Field Activity, West in San Bruno, California. A copy of the Administrative Record documents is contained in the Information Repository.

CONCORD NWS
HISTORICAL PROGRESS

FY83

An Initial Assessment Study (IAS) identified 28 potentially contaminated sites at Concord NWS. Fifteen sites were recommended for no further study. Thirteen sites were recommended for further investigation.

FY85

Sites 3, 4, 25 and 26 - A Confirmation Study (CS) addressed these sites and recommended further investigation.
Sites 5, 6, 13 and 16 - A CS addressed these sites. No further action was recommended.

FY86

Sites 3-6, 25 and 26 (Litigation Area Sites) - A final Remedial Investigation/Feasibility Study (RI/FS) was completed. Ten Remedial Actions(RAs) alternatives were identified.
Site 14 - An investigation was completed and slightly elevated levels of arsenic, chromium and lead were found in groundwater. However, it was later determined the elevated levels were naturally occurring and not from a source of contamination.

FY87

Site 27 - Petroleum products and solvents were reportedly disposed on the ground surface. The site was identified after the completion of the IAS and was added to a subsequent Site Inspection (SI).
Site 28 - A source of heavy metals was found during litigation proceedings with Potentially Responsible Parties (PRPs) involving other sites and this site was added to an ongoing Remedial Investigation (RI).

FY88

Sites 3-6, 25, 26 and 28 (Litigation Area Sites) - A revised final RI was completed and found elevated concentrations of arsenic, cadmium, copper, lead, selenium and zinc in soil. A second revised Feasibility Study (FS) was completed.
Sites 3, 26 and 28 - Clam bioassay test results indicated a potential for cadmium, lead and zinc to move into surface waters at these sites. Plant and earthworm bioassays indicated movement of arsenic, cadmium, copper, lead, selenium and zinc into plants and soil-dwelling organisms that have potential toxicological impacts and potential contamination of species higher on the food chain, such as birds and mammals, with heavy metals. The soil of the Tidal Area is generally underlain with clay silts of low permeability that impede contaminant movement downward. Groundwater contamination was considered unlikely, but groundwater studies were included in the RI/FS.

FY89

Sites 3-6, 25, 26 and 28 - An RA plan was completed and identified several alternatives for each site. A Record of Decision (ROD) signed in April 1989, specified the excavation of contaminated soil from the area in each site designated for active remediation, disposal of contaminated soil in an existing Class I landfill, restoration of the excavated area and operation and maintenance, including monitoring. In addition to these actions, liming was specified for low pH soil at Site 6.

FY91

Sites 3-6, 25, 26 and 28 (Litigation Area Sites) - The DON prosecuted claims to recover the costs of cleanup for these sites from 14 defendants and to require the owners of six contaminated properties adjacent to the sites to clean up their properties concurrent with the DON's cleanup.

FY92

Sites 3-6, 25, 26 and 28 - A Remedial Design (RD) was completed for these sites.
SWMUs - Forty-nine Solid Waste Management Units (SWMUs) were identified in the RCRA Facility Assessment (RFA) prepared by California EPA as part of the RCRA Part B permit. Twenty-five SWMUs were proposed for RCRA Corrective Action.
UST 1 - There were three tanks which were removed using Concord NWS funding.

FY93

Sites 8, 14, 19, 23A, 23B and 24B - An SI found no evidence of previously reported contaminants: No munitions-filled railcars reported to have been buried at Site 8. No volatile or semi-volatile organic compounds or petroleum hydrocarbons were found in the groundwater samples from Site 14. No evidence of culverts, outfalls, or contamination sources along the suspected 2,000 ft length of Site 19. No indication of explosive activities or explosive chemicals in the soil at Explosive Ordnance Disposal (EOD) Sites 23A and 23B. No evidence of firing range activities or elevated metals soil concentrations at Site 24B.
Sites 13, 17, 22, 24A and 27 - An SI recommended further investigation of soil and groundwater at Site 13, groundwater at Site 17 and soil at Sites 22, 27 and 24A.
Site 13 - The SI recommended removal of Napalm thickener.
Sites 1, 2, 9 and 11 - An SI addressed these sites and found volatile and semi-volatile organic compounds and metals in soil and groundwater and xylene, arsenic and mercury in sediment. Further investigation recommended.
UST 1 - An Initial Site Characterization (ISC) to define the extent of gasoline contamination in soil was completed.

FY94

Sites 6, 25, 26 and 28 (Litigation Area Sites) - An RA was completed at four (of seven) Litigation Area Sites and consisted of excavating and disposing of 22,700 cubic yards of soil contaminated with arsenic, cadmium, lead, selenium, copper and zinc and then grading and revegetating the sites. LTM is in effect to evaluate the success of the cleanup.

PROGRESS DURING FISCAL YEAR 1995

FY95

Sites 3-5 (Litigation Area Sites) - An RA is nearly complete for the remaining three Litigation Area Sites. Cleanup consisted of excavating and disposing of 20,000 cubic yards of soil contaminated with arsenic, cadmium, lead, selenium, copper and zinc and then grading and revegetating the sites. Only a small amount of planting remains. LTM began and is scheduled to continue for a minimum of 30 years, as required by the ROD to confirm that site contaminant levels continue to be below concentrations which require further remediation.

Site 14 - The three abandoned wells comprising this site were properly closed and sealed to prevent them from serving as future contaminant pathways to the aquifers below. The Well Closure Report was completed.

CONCORD NWS
PLANS FOR FISCAL YEARS 1996 AND 1997

FY96

Sites 2 and 11 (Tidal Area Sites); Sites 13 and 24A (Inland Area Sites) - An Engineering Evaluation/Cost Analysis (EE/CA), Action Memorandum, design documentation and public notice for a removal action are planned and expected to be completed for these four sites.
Sites 1, 2, 9 and 11 (Tidal Area Sites) - Phase 1A of the RI will be completed to evaluate soil/sediment/surface water contamination. Phase 1B of the RI will begin to evaluate groundwater contamination.
The Sampling Results Tech Memo, the Nature of Contamination Report and the Baseline Human Health and Qualitative Ecological Risk Assessment (QERA) reports are expected to be completed. A Quantitative Ecological Risk Assessment will begin.
Sites 3-5 (Litigation Area Sites) - An RA will be completed.
Sites 3-6, 25, 26 and 28 (Litigation Area Sites) - The second LTM event of these recently remediated sites is planned to begin.

FY97

Sites 13, 17, 22, 24A and 27 (Inland Area Sites) - The final RI/FS reports are expected to be completed and the ROD signed in FY98.
Sites 13 and 24A (Inland Area Sites); Sites 2 and 11 (Tidal Area Sites) - Removal actions are planned and expected to be completed for these four sites.
Sites 1, 2, 9 and 11 (Tidal Area Sites) - A Quantitative Ecological Assessment Report is expected to be completed.
Sites 3-6, 25, 26 and 28 (Litigation Area Sites) - A QERA is expected to be completed. The QERA will be used, together with the LTM results to determine if the remediation has removed significant risks to ecological receptors and if a future RA is required.
SWMUs - An RFA Confirmation Report, to confirm the presence of contamination at each SWMU will be completed and forwarded to the federal and state regulatory agencies in response to the state issued RFA. SWMUs requiring further CA will be identified and placed in a regulatory program for continued investigation and remediation.

PROGRESS AND PLANS

CERCLA	FY94 and before	FY95	FY96	FY97	FY98	FY99	FY00	FY01 and after
PA	28							
SI	21		1					
RI/FS	7				5		4	
RD	7						5	4
RA	4		3					9
IRA		1(1)		2(2)	2(2)			
RC	12	1		1				16
Cumulative Response Complete	40%	43%		47%				100%

RCRA CA	FY94 and before	FY95	FY96	FY97	FY98	FY99	FY00	FY01 and after
RFA	24							
RFI			1	23				
CMS							10	
DES								9
CMI								9
IRA			10(10)		1(1)			
RC				14			1	9
Cumulative Response Complete				58%			62%	100%

UST	FY94 and before	FY95	FY96	FY97	FY98	FY99	FY00	FY01 and after
ISC	3							
INV				1				
CAP	1		1			1		
DES				2				1
IMP					1	1		1
IRA			1(1)					
RC					1	1		1
Cumulative Response Complete					33%	67%		100%